

## WHAT IS CLAIMED IS:

- 1 1. A multi-user talking system for providing a multi-user  
2 talking service among viewers of a content, wherein:  
3 said multi-user talking system comprises a content  
4 distribution apparatus and a multi-user talking control apparatus,  
5 each apparatus being connected to terminals of viewers through a  
6 network;  
7 said content distribution apparatus comprises:  
8 request-for-viewing receiving means for receiving a request  
9 for viewing said content from a terminal of a viewer;  
10 viewer management means for managing a request for  
11 viewing received by said request-for-viewing receiving means,  
12 associating said request with a transmission source address of said  
13 request for viewing; and  
14 content distribution means for distributing said content to a  
15 transmission source address managed by said viewer management  
16 means, through said network;  
17 and  
18 said multi-user talking control apparatus comprises:  
19 request-for-participation receiving means for receiving a  
20 request for participation in multi-user talking, from a terminal of a  
21 viewer;  
22 participant management means that manages a transmission  
23 source address of a request for participation received by said  
24 request-for-participation receiving means, when said transmission

25 source address is managed by said viewer management means;  
26 mixing means that receives, through said network, respective  
27 pieces of talking data from terminals of viewers who have  
28 transmission source addresses managed by said participant  
29 management means, and mixes said pieces of talking data received  
30 to generate multi-user talking data; and

31 multi-user talking data distribution means for distributing  
32 the multi-user talking data generated by said mixing means to  
33 transmission source addresses managed by said participant  
34 management means, through said network.

- 1 2. The multi-user talking system according to Claim 1, wherein:  
2 said multi-user talking control apparatus further comprises:  
3 request-for-appeal-for-participation receiving means for  
4 receiving a request for appeal for participation in multi-user talking,  
5 from a terminal of a viewer; and  
6 appeal-for-participation means that distributes an appeal for  
7 participation in multi-user talking to terminals of viewers who have  
8 respective transmission source addresses other than transmission  
9 source addresses managed by said participant management means,  
10 among transmission source addresses managed by said viewer  
11 management means, when a transmission source address of the  
12 request for appeal for participation received by said  
13 request-for-appeal-for-participation receiving means is a  
14 transmission source address managed by said participant  
15 management means, and receives respective answers to said appeal  
16 for participation, from the terminals of said viewers;  
17 and

18           when an answer to said appeal for participation received by  
19   said appeal-for-participation means indicates intention of  
20   participating, said participant management means manages a  
21   transmission source address of said answer.

1   3.       The multi-user talking system according to Claim 2, wherein:

2           said multi-user talking system further comprising:

3           a database that registers private information of a registered  
4   person who can use said multi-user talking service, associating the  
5   private information with identification information of said  
6   registered person;

7   and

8           said request for viewing includes said identification  
9   information of the viewer;

10          said request-for-appeal-for-participation receiving means:

11          detects requests for viewing other than requests for viewing  
12   associated respectively with transmission source addresses managed  
13   by said participant management means, out of requests for viewing  
14   managed by said viewer management means, when a transmission  
15   source address of a request for appeal for participation received is a  
16   transmission source address managed by said participant  
17   management means;

18          specifies private information of viewers whose identification  
19   information is included in the detected requests for viewing, using  
20   said database and based on said identification information of the  
21   viewers; and

22          transmits participation selection information for the sake of  
23   selecting a piece of private information of a viewer to whom

24 participation is to be appealed out of the specified private  
25 information, to the transmission source address of said request for  
26 appeal for participation, so that the terminal of the viewer having  
27 the transmission source address of said request for appeal for  
28 participation selects a piece of private information of a viewer to  
29 whom participation is to be appealed;

30 and

31 said appeal-for-participation means:

32 specifies private information of a viewer whose  
33 identification information is included in a request for viewing  
34 managed in association with the transmission source address of said  
35 request for appeal for participation by said viewer management  
36 means, using said database and based on said identification  
37 information of the viewer;

38 transmits an appeal for participation, which is appealed by  
39 the viewer having said private information specified, to a  
40 transmission source address of a request for viewing that is managed  
41 by said viewer management means and that includes identification  
42 information of said selected piece of private information; and

43 receives an answer to said appeal for participation from a  
44 terminal of the viewer having said transmission source address.

1 4. The multi-user talking system according to Claim 1, wherein:

2 said network is an IP network;

3 said content distribution means converts said content into IP  
4 packets, adds transmission source addresses managed by said viewer  
5 management means to a header of each IP packet, and multicasts the  
6 IP packets onto said IP network; and

7           said multi-user talking data distribution means converts the  
8 multi-user talking data generated by said mixing means into IP  
9 packets, adds transmission source addresses managed by said  
10 participant management means to a header of each IP packet, and  
11 multicasts the IP packets onto said IP network.

1   5.       The multi-user talking system according to Claim 4, wherein:  
2           said multi-user talking system further comprising:

3           a first relay for relaying data between said IP network and  
4 television broadcast, said first relay having means for assembling IP  
5 packets addressed to the first relay itself to restore a content and for  
6 broadcasting the restored content; and

7           a second relay for relaying data between said IP network and  
8 a telephone network, said second relay having means for assembling  
9 IP packets addressed to the second relay itself to restore multi-user  
10 talking data and for transmitting the restored multi-user talking data  
11 to a channel specified by a telephone number informed from said  
12 multi-user talking control apparatus, and means for converting  
13 talking data received by said channel into IP packets and for  
14 transmitting the IP packets to said multi-user talking control  
15 apparatus;

16           said request-for-viewing receiving means comprises:

17           means for receiving a request for viewing from a viewer's  
18 terminal provided with an interface with said IP network through  
19 said IP network; and

20           means for receiving a request for viewing from a viewer's  
21 terminal provided with an interface with said telephone network  
22 through said telephone network;

23           said viewer management means sets a transmission source  
24 address associated with a request for viewing received by said  
25 request-for-viewing receiving means, to an IP address of a  
26 transmission source of said request for viewing, when said  
27 request-for-viewing receiving means receives said request for  
28 viewing through said IP network, and to a telephone number of the  
29 transmission source of said request for viewing, when said  
30 request-for-viewing receiving means receives said request for  
31 viewing through said telephone network;

32           said content distribution means uses an IP address of said  
33 first relay, as a transmission source address added to a header of  
34 each IP packet of said content, in place of a telephone number  
35 included in the transmission source addresses managed by said  
36 viewer management means, when such a telephone number exists;

37           said request-for-participation receiving means comprises:

38           means for receiving a request for participation from a  
39 viewer's terminal provided with an interface with said IP network  
40 through said IP network; and

41           means for receiving a request for participation including a  
42 telephone number from a viewer's terminal provided with an  
43 interface with said telephone network through said telephone  
44 network;

45           said participant management means sets a transmission  
46 source address associated with a request for participation received  
47 by said request-for-participation receiving means, to an IP address  
48 of a transmission source of said request for participation, when said  
49 request-for-participation receiving means receives said request for  
50 participation through said IP network, and to a telephone number of

51 the transmission source of said request for participation, when said  
52 request-for-participation receiving means receives said request for  
53 participation through said telephone network;

54 said mixing means receives pieces of talking data through  
55 said network from viewer's terminals each having an IP address  
56 managed by said participant management means and from said  
57 second relay, when a telephone number is included in transmission  
58 source addresses of requests for participation managed by said  
59 participant management means, and mixes the received pieces of  
60 talking data to generate multi-user talking data;

61 said multi-user talking data distribution means uses an IP  
62 address of said second relay, as an address added to a header of each  
63 IP packet of the multi-user talking data generated by said mixing  
64 means, in place of a telephone number included in the transmission  
65 source addresses of the requests for participation managed by said  
66 participant management means, when such a telephone number  
67 exists; and

68 said multi-user talking control apparatus further comprises a  
69 number informing means for informing said second relay of a  
70 telephone number included in a request for participation, when a  
71 transmission source address of said request for participation  
72 received by said request-for-participation means is said telephone  
73 number.

- 1 6. The multi-user talking system according to Claim 5, wherein:  
2 said viewer's terminal provided with the interface with said  
3 telephone network comprises:  
4 receiving means for receiving said content broadcast by the

5 television broadcast and for outputting the received content to a  
6 television broadcast display apparatus;

7 request-for-viewing transmitting means for transmitting a  
8 request, which includes a telephone number of a telephone set by an  
9 operator, for viewing said content, to said content distribution  
10 apparatus through said telephone network, before said receiving  
11 means receives said content; and

12 request-for-participation transmitting means for receiving a  
13 request for participation in multi-user talking from the operator  
14 while said receiving means is receiving said content, and for  
15 transmitting the received request for participation to said multi-user  
16 talking control apparatus through said telephone network.

1 7. The multi-user talking system according to Claim 5, wherein:  
2 said viewer's terminal provided with the interface with said  
3 IP network comprises:

4 request-for-viewing transmitting means for transmitting a  
5 request for viewing said content, to said content distribution  
6 apparatus through said IP network;

7 content display means for assembling IP packets addressed  
8 to said content display means itself to restore said content, and for  
9 displaying the restored content on a display unit;

10 request-for-participation transmitting means for receiving a  
11 request for participation in multi-user talking from an operator  
12 while said content display means is displaying said content on said  
13 display unit, and for transmitting the received request for  
14 participation to said multi-user talking control apparatus through  
15 said IP network;



16 multi-user talking output means for assembling IP packets  
17 addressed to said multi-user talking output means itself to restore  
18 said multi-user talking data, and for outputting sound conforming to  
19 the restored multi-user talking data, to a sound output apparatus;  
20 and

21 talking data transmitting means for converting talking data  
22 conforming to sound inputted through a sound input apparatus into  
23 IP packets, and for adding an IP address of said multi-user talking  
24 control apparatus to a header of each IP packet, to transmits the IP  
25 packets onto said IP network.

1 8. The multi-user talking system according to Claim 1, wherein:  
2 said request for viewing includes designation of the content  
3 that said viewer wishes to view;

4 said viewer management means manages requests for  
5 viewing including designation of respective contents, classifying  
6 said requests under said respective contents, and associating said  
7 requests with respective transmission source addresses of said  
8 requests;

9 said content distribution means distributes contents that are  
10 associated with respective transmission source addresses by said  
11 viewer management means, to said respective transmission source  
12 addresses associated with said contents, through said network;

13 said participant management means manages a transmission  
14 source address of a request for participation, associating said  
15 transmission source address with a content that is associated with  
16 said transmission source address by said viewer management means;

17 said mixing means generates multi-user talking data for each

18 content managed by said participant management means, by  
19 receiving pieces of talking data respectively from terminals of  
20 viewers having transmission source addresses associated with said  
21 content, and by mixing said pieces of talking data received, to  
22 generate said multi-user talking data; and

23       said multi-user talking data distribution means distributes  
24 the multi-user talking data generated for each content by said  
25 mixing means, to transmission source addresses associated with the  
26 content in question by said participant management means, through  
27 said network.

1     9.       A method of multi-user talking, which uses a computer for  
2 providing a multi-user talking service among viewers of a content,  
3 comprising:

4       a request-for-viewing receiving step of receiving a request  
5 for viewing said content from a terminal of a viewer;

6       a viewer management step of managing a request for viewing  
7 received in said request-for-viewing receiving step, associating said  
8 request with a transmission source address of said request for  
9 viewing;

10       a content distribution step of distributing said content to a  
11 transmission source address managed in said viewer management  
12 step;

13       a request-for-participation receiving step of receiving a  
14 request for participation in multi-user talking, from a terminal of a  
15 viewer;

16       a participant management step of managing a transmission  
17 source address of a request for participation received in said

18 request-for-participation receiving step, when said transmission  
19 source address is managed in said viewer management step;

20 a mixing step of receiving respective pieces of talking data  
21 from terminals of viewers who have transmission source addresses  
22 managed in said participant management step, and mixing said  
23 pieces of talking data received to generate multi-user talking data;  
24 and

25 a multi-user talking data distribution step of distributing the  
26 multi-user talking data generated in said mixing step to transmission  
27 source addresses managed in said participant management step.

1 10. The method of multi-user talking according to Claim 9,  
2 wherein:

3 in said request-for-viewing receiving step, said request for  
4 viewing is received from a viewer's terminal provided with an  
5 interface with an IP network, through said IP network, and received  
6 from a viewer's terminal provided with an interface with a telephone  
7 network, through said telephone network;

8 in said viewer management step, a transmission source  
9 address that is associated with a request for viewing received in said  
10 request-for-viewing receiving step is set to an IP address of a  
11 transmission source address of said request for viewing, when said  
12 request for viewing is received through said IP network, and to a  
13 telephone number of the transmission source of said request for  
14 viewing, when said request for viewing is received through said  
15 telephone network;

16 in said content distribution step, said content is converted to  
17 IP packets, and transmission source addresses managed in said

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18 viewer management step are added to a header of each IP packet, to  
19 multicast the IP packets onto said IP network, and, when a telephone  
20 number is included in the transmission source addresses managed in  
21 said viewer management step, then, an IP address of a first relay,  
22 which assembles IP packets addressed to the first relay itself to  
23 restore a content and broadcasts the content, is used in place of said  
24 telephone number as a transmission source address added to a  
25 header of each IP packet of said content;

26 in said request-for-participation receiving step, a request for  
27 participation is received from a viewer's terminal provided with an  
28 interface with said IP network, through said IP network, and a  
29 request for participation including a telephone number is received  
30 from a viewer's terminal provided with not an interface with said IP  
31 network but an interface with said telephone network, through said  
32 telephone network;

33 in said participant management step, a transmission source  
34 address of a request for participation received in said  
35 request-for-participation receiving step is set to an IP address of a  
36 transmission source of said request for participation, when said  
37 request for participation is received through said IP network, and to  
38 a telephone number of the transmission source of said request for  
39 participation, when said request for participation is received  
40 through said telephone network;

41 in said mixing step,

42 pieces of talking data are received through said IP network  
43 from viewer's terminals each having an IP address managed in said  
44 participant management step, and the received pieces of talking data  
45 are mixed to generate multi-user talking data; and

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46           when a telephone number is included in transmission source  
47 addresses managed in said participant management step, pieces of  
48 talking data are received from viewer's terminals each having an IP  
49 address managed in said participant management step and from a  
50 second relay, and said pieces of talking data are assembled to  
51 generate multi-user talking data, wherein said second relay  
52 assembles IP packets addressed to the second relay itself to restore  
53 multi-user talking data and to transmit the restored multi-user  
54 talking data to a channel specified by a telephone number informed  
55 from said computer, and converts talking data received from said  
56 channel to IP packets to transmits the IP packets to said computer;

57           in said multi-user talking data distribution step,

58           the multi-user talking data generated in said mixing step is  
59 converted to IP packets, and the transmission source addresses  
60 managed in said participant management step are added to a header  
61 of each IP packet, to multicast the IP packets onto said IP network;  
62 and

63           when a telephone number is included in the transmission  
64 source addresses managed in said participant management step, an  
65 IP address of said second relay is used in place of said telephone  
66 number, as an address added to a header of each IP packet of said  
67 multi-user talking data, and, when a transmission source address of  
68 a request for participation is said telephone number, then said  
69 telephone number is sent to said second relay.